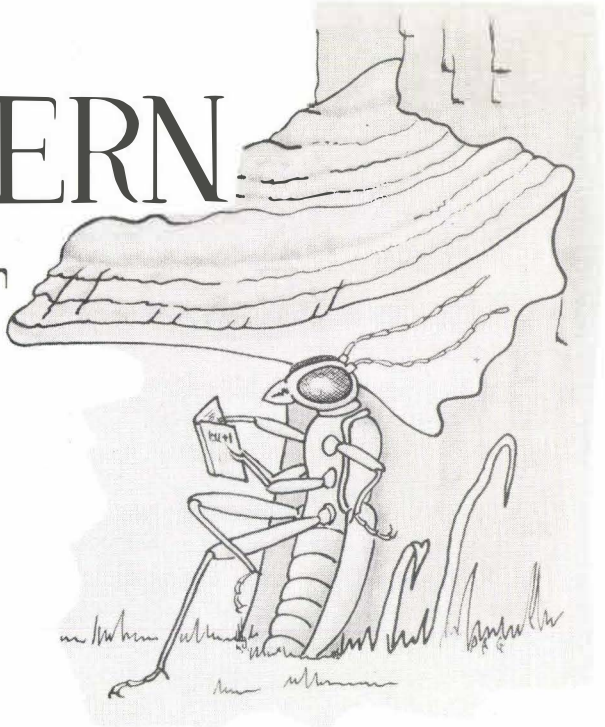
NORTHEASTERN FOREST PEST REPORTER



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This will be the last regular issue of the REPORTER in 1957. The response from all quarters this year has been excellent. Interesting new finds and facts were reported, and a real awareness of the complexity as well as significance of forest pest problems appeared in many reports from contributors. We hope that the REPORTER has proved to be of real interest and value to you. Let us hear if you have any ideas or suggestions as to how it can be improved or increased in usefulness.

THE DROUGHT

In its role as a biological "morning after the night before," drought may have many effects not immediately apparent. By the time some effects become evident they may be overlooked or ascribed to other factors. Naturally, the more immediate symptoms have loomed large in the reports for this issue of the Reporter.

Drought not only affects the host plant but also the insects and diseases living in or on it. With diseases this year, the drought both intensified and repressed symptoms. For example, the wilt producers and diseases affecting roots were generally intensified; foliage diseases, whose life cycle was vulnerable to exceptionally dry weather, were generally checked or damage from them reduced. With the insects, the effects of the drought were also variable, and in many cases unpredictable. For example, the effects of mites, sucking insects such as scales and aphids, the leaf skeletonizers and leaf miners, root-feeding grubs, etc., were generally intensified. On the other hand, it is possible that some defoliators might have been more beneficial than harmful, because by

reduction of the transpiration surface area of certain plants they could possibly compensate somewhat for the reduced water intake from soils deficient in moisture.

The secondary effects of the drought on the insects and diseases themselves may become evident next year or even several years hence. For example, the drought probably caused considerable mortality to the fine feeding roots of many trees, thereby weakening them. Bark beetles may gain entrance into host trees, so weakened, and survive in greater numbers. Next year many trees may succumb to this attack and a population upsurge may be initiated. Likewise, many diseases, ordinarily weak parasites, gain a foothold on such physiologically disturbed hosts weakened by drought. It is known that certain dieback conditions may be intensified by the resultant activities of weakly parasitic fungi, and the effects of these may be of many years' duration. Certain root rots may gain entrance into drought-weakened trees, but the effects will not be noticeable for many years, perhaps long after the initiating cause has been forgotten.

The drought was not uniform over the territory covered by the Reporter. This should be borne in mind in an evaluation of the remarks just given. Drought severity decreased going northward and westward from a broad band near the coast with New York City as its center. The drought was most severe in New Jersey and the Delmarva area; eastern Maryland, Pennsylvania, and New York; and central and southern New England. Generally, it lasted from about mid-May to mid-August.

With this conjectural discussion as an introduction, many of the more immediate effects of the drought are reported under the respective headings of Insects and Diseases which follow.

FOREST INSECTS

SPRUCE BUDWORM (Choristoneura fumiferana) The estimated acreages showing defoliation in northeastern Maine were as follows: light - 1,310,000 acres, medium - 707,000 acres, and heavy - 272,000 acres, or a total of 2,289,000. This represents a decrease from 1956 in the overall extent of the infestation, mostly in the areas of light feeding. Populations increased and resultant defoliation was more severe, however, in the northerly sections where conditions were most serious in 1956. Aggregate percentage parasitism of larvae and pupae was highest in the areas of light infestation, much lower in the medium and heavy infestations. The egg mass survey this year indicates continued high populations in 1958 in the area of heaviest defoliation. Airplane spraying of approximately 300,000 acres in 1958 has been recommended.

PINE ENGRAVER BEETLES (Ips sp.) Reported active in New York, Pennsylvania, Delaware, and Maryland. Scattered pines, chiefly loblolly, succumbing singly and in small groups in southern Delaware and the Eastern Shore of Maryland. A white pine stand of saw timber-size trees in the Savage River State Forest

in western Maryland was seriously infested this year by Ips beetles. The stand has been heavily infected by blister rust, and small cuttings were made periodically. The Ips have built up to the point where their damage plus the general deterioration due to blister rust has resulted in a decision to clearcut about 20 acres and perhaps other singles or groups of pines in the tract. Turpentine beetles (Dendroctonus valens and/or terebrans) are now present in some of the recently cut stumps in this stand and will have to be controlled as well as the Ips beetles.

PINE SAWFLIES The red-headed pine sawfly (Neodiprion lecontei) reported in unusual abundance in New York and western Maryland -- very nearly a constant threat to Christmas tree growers throughout the region. A sawfly (Neodiprion sp.) reported feeding heavily on pitch pine in Nicholas County, West Virginia. White pine sawfly (N. pinetum) caused some defoliation of white pine in reforestation area Lewis No. 7 in New York -- a sawfly, probably this species, attacked white pines at Burrillville, Rhode Island. The expected heavy infestations of red pine sawfly (N. nanulus) in St. Lawrence County, New York, did not materialize, apparently due to very poor egg hatch -- also, a fairly high percentage of collected cocoons were parasitized (species unidentified).

WHITE PINE WEEVIL (Pissodes strobi) This perennial pest continuing its discouraging depredations. Some reports of particular interest follow: Up to 90% of small planted white pines on Groton (Conn.) Water Co. lands weeviled; serious at many other locations in Connecticut. Up to 20% injury to Scotch pine terminals in Clarion and Centre Counties, Pennsylvania -- serious injury to Scotch pine reported in a state reforestation area at Rodman, New York. An unusual occurrence on red spruce in the Monongahela National Forest, West Virginia -- small, scattered acreages of native red spruce, 20 to 40 feet tall, have 25% - 50% of trees weeviled. Attacks now starting on smaller planted spruce. No native white pine in vicinityof these infestations. Evidence of previous attacks on the older spruce trees.

PINE LEAF APHID (Pineus pinifoliae) Noticeable populations present again in eastern and western sections of Maine; injury to white pine tips not too prevalent, however. A sharp drop in populations occurred in Vermont -- in some localities the expected heavy flights of gallicolae did not materialize, in others the hatch of exules was far below the level expected from the numbers of gallicolae migrans first established. The controlling factor here is a matter of conjecture, no evidence of predators or parasites. A light infestation reported on pine in the Black River Valley, New York.

SHOOT AND TIP MOTHS The European pine shoot moth (Rhyacionia buoliana) and the Nantucket pine tip moth (R. frustrana)abundant as ever this year. A statewide survey of the shoot moth in Pennsylvania -- planned by state and federal forest entomologists -- will be carried out by State personnel in October and November. Approximately 180 young red pine plantations will be sampled. Damage to Scotch pine terminals at three more spots in eastern Pennsylvania and at scattered localities in New York may be due to Eucosma sonomana -- this injury causing increasing concern to Christmas tree growers -- confirmation of the insect culprit is much needed.

MISCELLANEOUS INSECTS ON CONIFERS White spruce tip moth (Zeiraphera ratzeburgiana) prevalent on spruce in Maine coastal areas and islands. Balsam needle gall midge (Itonida balsamicola) abundant in many areas in eastern Maine, heavy needle drop later in the fall will prevent harvest of affected trees for Christmas tree market. Larch casebearer (Coleophora laricella) causing noticeable defoliation of larch in southern Pennsylvania. Yellow-headed spruce sawfly (Pikonema alaskensis) defoliating scattered white spruces in St. Lawrence County, New York. Heavy infestation of pine needle scale (Phenocaspis pinifoliae) on pine at Charleston, Rhode Island.

ORANGE-STRIPED OAK WORM (Anisota senatoria) Severe infestations reported throughout the region. Present in outbreak numbers on oaks in Franklin, Adams, Perry, and western Cumberland Counties, Pennsylvania. Moderate to heavy defoliation of oaks in central Connecticut, up to 90 percent defoliation in small area. Infestations at many locations in Rhode Island -- defoliation of lower branches is most severe, up to 100%, with total defoliation 25 to 50 percent -- pupation beginning in mid-September. Thirty acres on an island in Lake George, New York, were sprayed from the air with 2 gal. of 9% DDT per acre -- this area sprayed in 1956 with 1 gal. 6% DDT per acre.

VARIABLE OAK LEAF CATERPILLAR (Heterocampa manteo) General infestation in southern New Jersey, Delaware, and eastern Maryland apparently decreased in extent and intensity this year. Heavy defoliation again reported, however, at spots in Atlantic, Cape May, and Cumberland Counties in New Jersey, and in Sussex and Kent Counties, Delaware. The infestation near Greenwood Furnace, Pennsylvania, was very light this year.

GYPSY MOTH (Porthetria dispar) Defoliation survey in Vermont revealed this pest at low ebb, only 255 acres found with noticeable defoliation. Reported on increase in 26 of 50 towns in southeastern Massachusetts; trapping report indicates threat of dangerous population levels in the area totally sprayed in 1949-1950. In Maine, the few infestations reported in 1956 were apparently suppressed by severe winter temperatures and late spring frosts -- only 100 acres sprayed this year. An aerial survey in New York revealed only 850 acres defoliated, of which about 60 acres showed severe stripping -- this is the smallest acreage of defoliation in New York since 1951.

In Connecticut, scouting during the winter of 1956-1957 located approximately 63,000 acres of woodland heavily infested. About 8,000 acres in State forests and 46,000 acres on privately-owned land were sprayed during the 1957 season at a cost of $30,265 to the State and $23,055 to towns. Scouting for defoliation located 4,200 acres 50% or more defoliated in 12 towns. Practically all heavy infestations were in towns not sprayed since outbreak started. (Coop. Econ. Ins. Rpt. 7(37):746).

MAPLE LEAF CUTTER (Paraclemensia acerifoliella) Medium to heavy defoliation reported on sugar maple from various locations in northern New York. In Vermont, the abundance of adults last spring and early development of large numbers of leaf miners and subsequent casebearers pointed to increased severity of infestation. However, the expected defoliation in late July and early August did not occur, and plans for State aid control projects (using

2 gal. of 6% DDT per acre aerially applied) were abandoned. Moderate to heavy defoliation appeared belatedly at spots in Franklin and Washington Counties -- this late defoliation not considered very damaging to trees.

MISCELLANEOUS INSECTS ON HARDWOODS Approximately 500 acres in Keene and Elizabethtown, New York, reported showing moderate defoliation of aspen by the poplar leaf-folding sawflies (Pontania sp.). Walnut caterpillar (Datana integerrima) very abundant in many sections of New York and causing heavy defoliation of black walnut throughout Delaware. Fall webworm (Hyphantria cunea) very noticeable in Rhode Island, New York, and other states in region. An oak scale (probably Asterolecanium sp.) reported locally in northeastern Massachusetts. Saddled prominent (Heterocampa guttivitta) infestations in central Maine and western Massachusetts now subsided. Mimosa webworm (Homadaula albizziae) heavy on honeylocust in south-central Pennsylvania and severe locally on mimosa in Pennsylvania and Delaware.

W.E.W.

FOREST DISEASES

DROUGHT Sizable patches of dead trees are appearing on exposed dry ridges in parts of Massachusetts, Connecticut, eastern New York, and Rhode Island. Connecticut reports heavy mortality on sugar maple saplings growing along roads in New London, Windham and Middlesex counties -- the loss being probably due to summer drought. Connecticut also reports that forest plantings established last spring show mortalities up to 50%; the damage began to show during the last week of July. A contributor from New Jersey reports the continued dry weather has seriously affected tree growth and survival in New Jersey, Delaware, and eastern Maryland with heavy loss and damage being conspicuous in shade and ornamental trees and shrubs, particularly in southern New Jersey and Delaware. There also has been conspicuous, though less spectacular, damage to forest trees with most mortality confined to the least vigorous stems; growth reduction of most surviving trees has been appreciable. From the White Mountain area of New Hampshire comes a report of early coloration of soft maple beginning as early as July and continuing to increase during August. As there is no evidence of insects or disease it is assumed due to physiological factors induced by the extremely dry spring and early summer drought. Similar symptoms are general throughout the Northeast. Vermont reports scorch of ornamental and roadside maples statewide as usual. Massachusetts reports the most important tree problem at present is drought. In many cases the combination of dry weather plus mite and aphid infestation, encouraged by such weather, has caused partial to nearly complete defoliation of many trees. The cumulative effects of the drought conditions in 1957 have broken all records in certain towns. Affected trees reported to the Shade Tree Laboratories of Massachusetts include elm, maple, yew, hemlock, magnolia, poplar, and juniper. A type of early defoliation has been noted in some areas of southern Connecticut where green, unwilted and seemingly normal, healthy leaves of Norway maple started to shed in early September. Aphid infestation is common, but this early defoliation is apparently related to the extreme drought conditions which prevailed during the growing season. This leaf shedding became most noticeable after the drought was broken by August rainfall.

The fall foliage map of the State Planning and Development Commission of New Hampshire showed autumn foliage effects the first week of September in central and western New Hampshire. Parts of Grafton, Merrimack, Hillsborough and Sullivan counties, where individual scattered maples (many in pastures and woodland away from any man-caused disturbance), were in full autumn color toward the end of August. However, most of the decadent (hence early-colored) maples are along roadsides. An increase in dead and dying elms -- many infected by Dutch elm disease -- and maple troubles were the most noticeable of the New Hampshire tree problems.

WHITE PINE BLISTER RUST (Cronartium ribicola) Massachusetts reports that the blister rust program was delayed by lack of field workers in the early part of the season, but the maintenance area is increasing. Extra emphasis is being planned for the 1958 season.

ASH LEAF RUST (Puccinia sparganioides) Very light in Maine this year as compared to previous years.

ELM LEAF SPOT (Gnomonia ulmea) Localized reports of elm leaf spot from a northeastern county of Massachusetts have been received; however, its actual intensity will need checking next year as drought is believed to have entered this season's picture. Another Massachusetts report states "despite the several droughts, elm 'pepper-and-salt' leafspot has been more severe in many towns than in 1956, increasing the elm defoliation."

LEAF BLISTER (Taphrina sp.) Vermont reports light to moderate infections of sugar maple in scattered localities.

LEAF BLOTCH OF HORSECHESTNUT (Guignardia aesculi) Although the drought affected the development of the imperfect stage of this fungus and reduced the formation of fruiting pustules, the August and early September showers caused some re-activation of the disease and it has become more conspicuous in many sections of the Northeast than it was earlier this season.

ANTHRACNOSE Light to moderate infections of Gloeosporium apocryptum were common in scattered localities of Vermont. Maine reports anthracnose fungi as locally common over wide areas on ash and oak, probably aided by widespread late frost injury. Pennsylvania reports G. aridum attacking white ash trees in Frackville.

TIP BLIGHT OF PINE (Diplodia pinea = Sphaeropsis ellisii) Injury is reported on Austrian pine at Center Moreland, Pennsylvania.

WILT DISEASES Maine reports more trees with Verticillium and Cephalosporium have been cultured in connection with a big increase of Dutch elm disease (Ceratocystis ulmi) this past season. This confirms statements made in the previous issue of the Reporter concerning the effects of drought on the intensification of wilt symptoms. Maine is compiling a new bulletin for public information to stimulate interest in starting community prevention programs in the State.

CANKER DISEASES Strumella canker (Strumella coryneoidea) has been of occasional occurrence in Maine, while Nectria pit canker has also been commonly found this year. Bleeding canker (Phytophthora sp.) is reported widespread in Vermont.

ROOT ROTS Fomes annosus has been reported prevalent in red pine plantings at Chatfield Hollow State Park in Killingworth, Connecticut, and in Fort Shantok State Park in Uncasville, Connecticut. A report of F. annosus infection killing red pines in the Swallow Falls State Forest in Garrett County, Maryland has been received. Verbal reports of F. annosus on juniper in Delaware, and on pitch, loblolly, ponderosa, and red pine in the Lebanon State Forest of New Jersey have been received. Maine reports F. annosus at Parsonfield associated with a patch of dead red pine in a plantation, though other patches of dead trees showed no evidence of the disease. A fruiting conk of F. annosus was collected on a dead white pine root in the vicinity of Lincoln, Maine. This was in a natural white pine stand.

The shoestring fungus (Armillaria mellea) has been reported as common on elm and maple in Maine.

Wood-rotting fungi and other saprophytic fungi were fruiting so prolifically on the Penobscot Experimental Forest in Maine during mid-August, that collection conditions were some of the best ever encountered by the writer. Apparently frequent showers during late July and early August followed by dry weather beginning about August 12, combined with suitable temperature and time of year, provided ideal collecting conditions during the 2nd and 3rd weeks of August in this region.

NON-PARASITIC or DISEASES OF UNKNOWN CAUSE

WHITE PINE NEEDLE BLIGHT has been common locally since mid-July in the southern half of Maine. New Hampshire reports pine needle blight as rather light, and most trees that exhibited severe symptoms in 1954 had no symptoms in 1957.

WHITE PINE DETERIORATION This trouble of unknown cause, but somewhat resembling white pine needle blight, has been centered in the Wiscassett area of Maine. It now shows evidence of spread. Detailed survey of present areas is being made and progress of individually marked trees will be followed.

DEATH OF RED PINE Patches of red pine on a 1600-foot mountain top have died in the Stoneham area of Maine. Lack of moisture is considered as causing the death as the soil is shallow and the trees were growing on an exposed rock ledge; furthermore, no dead trees were found 50 to 100 feet below the exposed ledges.

GAS INJURY - is common in Portland, Maine, to elm and maple.

MISCELLANEOUS TROUBLES Complications of drought effects are probably involved in many of the troubles reported herein.

MAPLE DIEBACK Vermont reports roadside and ornamental maples showing early fall discoloration, in which Verticillium wilt and Phytophthora bleeding canker, and a generally weakened condition of the trees may be partial contributing factors. DIEBACK is also apparent to a lesser extent in sugar orchards and forest trees in Vermont. Maine reports roadside maples in poor condition due to old age, plus late frost and sun scorching during 1957. Elms showed yellow foliage in Maine to a varying extent due to dry weather; this confused the scouting program for Dutch elm disease. Pennsylvania reports patches of scarlet oak between Shermansdale and Marysville were killed by LATE SPRING FROSTS.

P.V.M.

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As of June 30, 1957 the retirement of the following three members of the staff of this Laboratory became effective:

Mr. S. F. Potts, Entomologist
Dr. Alma M. Waterman, Pathologist-Mycologist
Dr. Glenn G. Hahn, Pathologist

Many of you have known this for some time, but it was thought fitting to end the season with a note regarding these retirements in the hope that through the wide distribution of the REPORTER the information would reach those who do not know, but who might be interested.